



## *The Connecticut Agricultural Experiment Station*

123 HUNTINGTON STREET, P.O. BOX 1106, NEW HAVEN, CONNECTICUT 06504

*Putting Science to Work for Society*  
*Protecting Agriculture, Public Health, and the Environment*

*Founded 1875*

**To:** Senator Bye, Representative Walker, and other members of the Appropriations Committee.

**From:** Dr. Theodore G. Andreadis, Director, The Connecticut Agricultural Experiment Station (CAES)

I would like to take this opportunity to provide you with a few brief highlights of some of our research accomplishments in 2013 and initiatives for 2014 on food safety, forestry, agriculture, and public health.

**Food Safety:** Connecticut General Statutes [Sec. 22-81(c)] directs the CAES to conduct analyses as required by any state agency. We also assist the US Food and Drug Administration (FDA) in a national counter-terrorism program called the Food Emergency Response Network. The main objective is to protect our food and water supply by testing samples for poisons, toxins, and other agents of concern for chemical terrorism. Inspectors from the Connecticut Department of Consumer Protection collected foods from farms and wholesale and retail establishments and requested analyses for pesticides and heavy metals. Most foods are safe to consume. However, on occasion, there are violations. Excessive pesticide residues were detected in imported samples of basil, eggplant, and snow peas, as well as domestic nectarines, pears, and apples. Results were reported to state and federal officials for enforcement.

In other work, an imported eye liner from Pakistan was submitted by Consumer Protection and found to contain over 15% lead by weight. Station findings resulted in an FDA requested recall of the product. Studies conducted in collaboration with the US FDA to measure total and inorganic arsenic in juice, rice, and other foods are ongoing.

We are also assisting the Department of Energy and Environmental Protection in analysis of lobster tissues collected from Long Island Sound for pesticide residues.

**Forestry:** The emerald ash borer (EAB), first detected in Prospect by Experiment Station staff in 2012 continues to expand its range. Infestations of this destructive insect of ash trees have now been discovered in 15 towns encompassing four counties in Connecticut, although the infestation is still largely centered in northern New Haven County. The state quarantine for EAB was expanded in August 2013 to include Fairfield, Litchfield, and Hartford counties in addition to New Haven County. All four counties are also under federal quarantine. In cooperation with the USDA, thousands of two parasitic wasps that attack the egg and larval stages of EAB have been released by CAES scientists at sites in Prospect and Middlebury. Surveys for EAB will resume in summer 2014.

In cooperation with Northeast Utilities and the Forestry Division of the Department of Energy and Environmental Protection, Station scientists have initiated studies to proactively develop healthy, storm resistant roadside trees by combining arboricultural and forestry practices.

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We are additionally expanding our diagnostic capabilities to diagnose diseases of trees by developing more accurate molecular methods that include the use of cutting edge nondestructive methods such as sonic tomography and electrical impedance tomography to assess internal decay.

**Agriculture:** Research is ongoing to identify effective detection and management tools for the boxwood blight fungus in nurseries and landscapes throughout Connecticut. CAES has been awarded a second federal grant to continue research aimed at understanding this important new disease for North America. New infections of boxwood, a very popular ornamental plant, continue to be identified in Connecticut, which have resulted in stop sale notices to nurseries as well as plant destruction by burial or incineration. As a founding participant of a multi-state, multi-agency boxwood blight research consortium, CAES researchers have taken the lead in developing a sensitive and specific molecular detection assay to improve early diagnosis, identifying effective products for sanitizing tools and equipment needed to refine best management practices, and identifying fungicides that have potential for effectively protecting plants from infection.

At the request of the microbrewery industry in Connecticut, a new project on growing hops and malt grains such as barley has been started to allow local production of ingredients to enhance the flavor of craft beers. Hops have been established and are being grown on two Station farms under low and high trellis systems to evaluate disease resistance and adaptability to Connecticut. Barley varieties were grown last year and combined to determine yields.

To provide new opportunities for Connecticut farmers and "Connecticut Grown", the New Crops Program at CAES is investigating unusual ethnic and specialty crops as well as new cultivar trials for more established crops. Over 40 fruits and vegetables have been studied. Current research includes evaluation of colored sweet peppers, supersweet corn, sweet potatoes, specialty melons, kabocha squash, and hops. Experiments are conducted at Lockwood Farm in Hamden and at the Valley Laboratory in Windsor to determine the most effective cultural methods for growing each crop in Connecticut.

**Public Health:** Mosquito surveillance for eastern equine encephalitis (EEE) and West Nile virus (WNV) is integral to the public health response to these mosquito-transmitted viruses in Connecticut and provide an effective early warning system for citizens of the State. Experiment Station scientists and technicians monitor mosquito and encephalitis virus activity at 91 trapping sites from June through October. In 2013, WNV was detected in 90 mosquito pools collected from 22 towns representing over 192,000 mosquitoes. Four human cases were reported in Fairfield County. High levels of EEE activity were found in New London County. A total of 58 isolations of EEE virus were made from mosquitoes collected in five towns. Camp grounds in the Pachaug State Forest in Voluntown were closed due to high EEE activity in mosquitoes. A horse stabled in Griswold and hundreds of pheasants from commercial flocks in Killingly, Putnam and Sprague died from EEE infections this past summer. No EEE human infections were identified.

We continue to closely monitor the expansion in Connecticut and vector potential of two exotic mosquito species from Asia, *Aedes albopictus* (Asian tiger mosquito) and *Aedes japonicus* that are aggressive human biters and have been implicated in transmission of several human pathogens, including Chikungunya virus, EEE and WNV.

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Lyme disease continues to be a significant public health concern in the State. The Centers for Disease Control and Prevention (CDC) officially recognized that the actual number of cases is likely to be ten times what is reported, suggesting there were approximately 26,500 cases in Connecticut in 2012. With funding from the CDC and working closely with the town of Redding, Station scientists are currently conducting an integrated tick management study to examine a combination of strategies that include application of a biological insecticide, rodent bait boxes and deer reduction to reduce tick abundance and the risk of Lyme and other tick transmitted diseases that are also increasing in incidence in the State (anaplasmosis, babesiosis, Powassan virus and a related virus, called the Deer Tick Virus).

Bed bugs have become a major urban pest in Connecticut causing severe economic hardship and social dislocation to those who have experienced infestations. The insect is now considered a common problem especially in public and senior housing throughout the State. To directly address this issue, scientists at CAES are studying the biology and adaptive behaviors associated with human feeding and survival. We are also evaluating novel chemical repellants and attractants for early detection and control of this noxious pest.

**Current Budget Status:** The CAES expenditure for FY 2013 was \$11,176,787. This amount is subdivided as follows: state general fund (\$6,775,556), federal grants (\$3,697,665), and other extramural funds (\$703,566). The latter mainly represent private and industry contributions. There are 8 unfilled vacancies.

Please feel free to e-mail me at [theodore.andreadis@ct.gov](mailto:theodore.andreadis@ct.gov) or contact me by phone (203) 974-8440 if you have questions. Thank you.

Sincerely,



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Director

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